

CLAIMS

g013  
Sub A1  
Sub A2  
YADIS

1. A protein capable of affecting an ABA response and comprising one or more of the following:

- (i) a hydrophobic C-terminus;
- (ii) at least one coiled coil region;
- (iii) an EF-hand consensus sequence;
- (iv) a nucleotide binding site; and
- (v) a hydrophilic N-terminus;

or a variant thereof.

2. A protein according to claim 1 which is capable of being cleaved by the toxin botulinum C.

3. A protein according to claim 1 or 2 comprising (i) to (iv), and optionally (v), and which is capable of being cleaved by the toxin botulinum C.

4. A protein according to claims 1-3 wherein the hydrophobic C-terminus comprises the sequence from position 282 to position 296 of the amino acid sequence shown in SEQ ID No. 2.

5. A protein according to claim 4 wherein the hydrophobic C-terminus comprises the sequence from position 280 to position 294 of the amino acid sequence shown in SEQ ID No. 2.

6. A protein according to claims 1-5 wherein at least one of the coiled coil regions comprises the sequence from position 210 to position 247 of the amino acid sequence shown in SEQ ID No 2.

118

7. A protein according to claim 6 wherein at least one of the coiled coil regions comprises the sequence from position 216 to position 240 of the amino acid sequence shown in SEQ ID No 2.

8. A protein according to claims 1-7 wherein the hydrophilic N-terminus comprises the sequence from position 1 to position 280 of the amino acid sequence shown in SEQ ID No 2.

9. A protein according to claim 8 wherein the hydrophilic N-terminus comprises the sequence from position 1 to position 279 of the amino acid sequence shown in SEQ ID No 2.

Sub A3) 10. A protein according to claims 1-9 wherein the nucleotide binding site comprises the sequence of positions 114 to 119 of the amino acid sequence shown in SEQ ID No 2.

11. A protein according to claims 1-9 wherein the nucleotide binding site comprises the sequence of positions 116, 118 and 120 of the amino acid sequence shown in SEQ ID No 2.

12. A protein according to claims 1-11 wherein the EF-hand consensus sequence comprises the sequence from position 16 to 28 of the amino acid sequence shown in SEQ ID No. 2.

13. A protein according to claim 1-12 wherein the hydrophobic C-terminus comprises a membrane spanning region.

14. A protein according to claim 1-13 wherein there are three coiled coil regions.

15. A protein according to claim 1-14 wherein at least one coiled coil region corresponds to an epimorphin pattern.

119

16. A protein according to claim 6 or 7 wherein the coiled coil region corresponds to an epimorphin pattern.

17. A protein according to any preceding claim derivable from a plant, or a mammal.

18. A protein comprising the amino acid sequence shown in Seq ID No. 2 or 3, or a variant thereof.

Sub A) 19. A method of screening for protein-protein interaction comprising the use of a protein of any preceding claim and selecting compounds exhibiting said interaction.

Sub B) 20. A protein selected using the method of claim 19.

Sub A<sup>5</sup>) 21. Nucleic acid encoding the protein of any one of claims 1 to 18, or 20.

22. Nucleic acid comprising the sequence from positions 18 to 917 shown in SEQ.ID No. 1 or the sequence from positions 77 to 991 shown in SEQ ID No. 3.

23. Nucleic acid sequence encoding for a protein capable of affecting an ABA response and wherein the protein comprises one or more of:

- (i) a hydrophobic C-terminus;
- (ii) at least one coiled coil region;
- (iii) an EF-hand consensus sequence;
- (iv) a nucleotide binding site; and
- (v) a hydrophilic N-terminus;

or a variant thereof.

24. Nucleic acid sequence according to claim 23 wherein the protein is capable of being cleaved by the toxin botchellinium C.

120

25. Nucleic acid sequence according to claim 23 or 24 comprising the sequence from position 18 to position 917 as shown in SEQ ID No 1 or positions 77 to 991 shown in SEQ ID No. 31.

26. A protein encoded by the nucleic acid of any one of claims 22 to 25.

27. An expression vector comprising the nucleic acid of any one of claims 21 to 25 operably linked to a promotor.

28. A host cell transformed with the expression vector of claim 27.

29. A cell according to claim 28 wherein said cell is a plant, fungal or mammalian cell.

30. A plant, fungus or mammal comprising the expression vector of claim 28.

SubA<sup>6</sup>) 31. A method of selecting compounds capable of affecting a plant's response to stress comprising screening compounds which bind to the protein of any one of claims 1 to 18 or 20 and selecting compounds exhibiting said binding.

32. A compound selected using the method of claim 31.

33. An agricultural composition comprising the compound of claim 32.

SubA<sup>7</sup>) 34. Nucleic acid comprising the sequence shown in SEQ ID No. 5.

35. A cell comprising the anti-sense sequence to the nucleic acid of any one of claims 21 to 25.

36. A cell according to claim 35 wherein said cell is a plant, fungal or mammalian cell.

Sub A<sup>8</sup>)

37. A plant, fungus or mammal comprising the anti-sense sequence to the nucleic acid of any one of claims 21 to 25.

38. A cell, plant, fungus or mammal according to claim 36 or 37 wherein the anti-sense sequence comprises the sequence shown in SED ID No. 5.

39. An assay method for screening interaction of a non-animal signalling component with a ligand, the method comprising exposing animal cells, having a non-animal signalling component contained therein to a ligand; and observing any physiological effect caused by interaction of the non-animal signalling component with the ligand; wherein if the non-animal signalling component interacts with the ligand a first detectable physiological effect is observed.

40. An assay method according to claim 39 wherein the non-animal signalling component is a plant signalling component.

Sub A<sup>9</sup>)

41. An assay method according to claim 39 or 40, wherein the animal cells are oocytes.

42. An assay method according to any one of claims 39 to 41, wherein the animal cells are from *Xenopus*.

43. An assay method according to any one of claims 39 to 42, wherein interaction of the signalling component with the ligand causes an increase in free  $\text{Ca}^{2+}$  levels within the cell.

44. An assay method according to any one of claims 39 to 43, wherein the first detectable physiological effect is an electrical signal.

122

45. An assay method according to any one of claims 39 to 44, wherein the signalling component is an ABA signalling component.

46. An assay method according to any one of claims 39 to 45, wherein the signalling component contained within the cells is derived from one or more nucleotide sequences (eg mRNA) injected into the cells.

47. An assay method according to any one of claims 39 to 46, wherein the assay method includes the further step of observing a second detectable effect.

48. An assay method according to claim 47, wherein the second detectable effect is observed in the absence of the first detectable effect.

Sub H<sup>10</sup>) 49. An assay method according to claim 47 or claim 48, wherein the second detectable effect is an electrical signal.

50. An assay method according to claims 39 to 49, wherein if a second detectable effect is observed the composition of the plant nucleotide sequence is compared with compositions of non-plant nucleotide sequences to determine if the plant nucleotide sequence has at least partial homology with non-plant nucleotide sequences.

51. An assay method according to claim 50, wherein if the plant nucleotide sequence has at least partial homology with a non-plant nucleotide sequence, the assay method further includes assessing whether the non-plant nucleotide sequence or the expression product thereof is effected by a compound.

52. A method comprising introducing a compound identified by the assay method of claim 51 into a plant, part thereof or cell.

53. A plant, part thereof or cell having contained therein a compound identified by the assay method of claim 51.

Sub A<sup>11</sup>)

54. A method comprising introducing a non-plant nucleotide sequence having at least partial homology with a plant nucleotide sequence identified by the assay method according to claim 50 into a plant, part thereof or cell.

55. A plant, part thereof or cell having contained therein a non-plant nucleotide sequence having at least partial homology with a plant nucleotide sequence identified by the assay method according to claim 50.

56. An animal, part thereof or cell having contained therein a non-plant nucleotide sequence having at least partial homology with a plant nucleotide sequence identified by the assay method according to claim 50.